

REMARKS

The above Amendments and these Remarks are submitted under 35 U.S.C. § 132 and 37 C.F.R. § 1.111 in response to the Office Action mailed March 16, 2006.

Summary of the Examiner's Action and Applicants' Response

The Examiner has objected to Claim 3 based on the form of the claim. The Examiner has rejected Claims 1-17 under 35 U.S.C. 102(b) as being anticipated by Bloom, U.S. Patent No. 5,726,615. Applicants respectfully traverse the rejection.

In this amendment, Applicants have amended Claim 3. Claims 1-17 remain pending.

Response to the Objection to Claim 3

The Examiner has objected to Claim 3 based on the form of the claim regarding the recitation of "the soldered attachment". Claim 3 has been amended herein such that the claim no longer recites "the soldered attachment". Applicants respectfully request therefore, that the objection to Claim 3 be withdrawn.

Response to the Rejection of Claims 1-17 under 35 U.S.C. § 102(b)

The Examiner has rejected Claims 1-17 under 35 U.S.C. 102(b) as being anticipated by Bloom. Regarding Claim 1, the Examiner stated that Bloom discloses the electromagnetic component, as claimed. With regard to the first conductive layer element, in paragraph 3(d) of the Office Action, the Examiner stated that Bloom discloses a first conductive layer 58a attached to a first outer surface of a PCB in a position at the top of a stack and having two terminal ends and approximately the same shape as the conductive traces. The Examiner stated that the top layer shown in FIGs. 8A-8C in Bloom is considered to show a first conductive layer. Similarly, in paragraph 3(f) of the Office Action, the Examiner stated that Bloom discloses a second conductive layer 58f attached to a second outer surface of the PCB in a position at the bottom of the stack and having two terminal ends and approximately the same shape as the conductive traces. Applicants respectfully disagree.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." M.P.E.P. 2131, *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

“The identical invention must be shown in as complete detail as is contained in the ...claim.”

Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The electromagnetic component, as claimed in Claim 1, is formed from a multi-layer PCB including a plurality of conductive traces. Each conductive trace is formed on an insulating layer of the PCB and positioned such that the conductive traces form a stack. As claimed in Claim 1, a first conductive layer of the electromagnetic component is attached to a first outer surface of the PCB in a position at the top of the stack. The electromagnetic component of Claim 1 includes a second conductive layer attached to a second outer surface of the PCB in a position at the bottom of the stack.

The Examiner stated that Bloom discloses a first conductive layer 58a attached to a first outer surface of a PCB in a position at the top of a stack. In the rejection, the Examiner considered the top layer as a first conductive layer, citing FIG. 8A as an example. Similarly, the Examiner stated that Bloom discloses a second conductive layer 58a attached to a first outer surface of a PCB in a position at the top of a stack, again citing FIG. 8A. Applicants respectfully submit that Bloom shows in FIGs. 8A-8C how windings 58 of double-sided circuit boards are interconnected. (See Col. 7, lines 32-48). Referring to FIG. 8A, Bloom discloses a winding 58a on one side of a double-sided circuit board and winding 58b on the other side. Bloom discloses windings 58c and 58d on each side of a second double-sided circuit board. A third double-sided circuit board disclosed in Bloom has windings 58e and 58f on each side.

As stated in Bloom, “[p]lanar PCB constructions, like those shown in FIGS. 8A, 8B and 8C, have the advantage of eliminating the need for winding bobbins when constructing a magnetic component, **since the PCB base material, an electrical insulator/non-conductor, serves as the supporting structure for the windings.**” (Col. 7, lines 49-54). (Emphasis added). Thus, Applicants respectfully submit that the windings 58 shown in FIGs. 8A-8C are carried on an insulator material of the PCB, e.g., an insulating layer. Further, Bloom discloses winding disks 35, 36, and 37. (See FIG. 1A). Bloom discloses that each of the winding disks “**insulatingly carries** on at least one of its sides at least one flat electrical conductor 58a and 58b disposed generally spirally around a central aperture”. (See Col. 6, lines 54-58). (Emphasis added). Thus, Applicants respectfully submit that Bloom teaches that at least one of 58a and 58b are insulatingly “carried” on at least one side of a PCB, shown in FIGs. 8A-8C, and on winding disks 35, 36, and 37, shown in FIG. 1A. Applicants respectfully submit therefore, that Bloom teaches that 58a and

58b are insulatingly “carried”, i.e., carried on an insulating layer.

The electromagnetic component includes a combination of multi-layer PCB conductive traces and two additional conducting layers, as claimed in Claim 1. (Paragraph [0009]). Each conductive trace is formed **on an insulating layer** of the PCB. The electromagnetic component, as claimed in Claim 1, includes a separate first **conductive layer** attached to a first outer surface of the PCB. A second **conductive layer** is attached to a second outer surface of the PCB, as claimed in Claim 1. Applicants respectfully submit therefore, that the first and second conductive layers, as claimed, are not part of the PCB, but instead are attached to a first outer surface of the PCB. Applicants respectfully submit therefore, that the electromagnetic component, as claimed in Claim 1, includes PCB **insulating layers** having conductive traces respectively thereon, and **includes a first and second conductive layer, as separate elements**. In contrast, Bloom teaches, as described above, that 58a and 58b are electrical conductors carried on an insulator, e.g., insulating layer. Applicants respectfully submit therefore, that the electrical conductors 58a - 58f taught in Bloom are not separate conductive layer elements, as claimed in Claim 1, but instead are conductive traces formed on corresponding insulating layers of a winding disk, (e.g., FIGs. 1A, 6A, and 6B) or of a double-sided PCB (e.g. FIGs. 8A-8C). Applicants respectfully submit therefore, that Bloom does not teach PCB insulating layers having conductive traces respectively thereon, along with separate first and second conductive layers, as claimed in Claim 1.

Further, in paragraph 3(a) of the Office Action, the Examiner stated that conductive traces 58, defined as flat electrical conductors in column 6, lines 57-58, comprise a plurality of conductive traces, as claimed in Claim 1. As seen in FIGs. 8A-8C, conductors 58 include conductive traces 58a-58f. However, as indicated above, the Examiner also stated in the Office Action that conductive layers 58a and 58f comprise the conductive layers attached to the outer surface of the PCB, as claimed in Claim 1. Applicants respectfully submit therefore, that the Examiner has improperly identified the electrical conductors 58a and 58f as teaching two separate claimed elements, i.e., the conductive traces formed on an insulating layer **as well as** the outer conductive layers.

For all of the above reasons, Applicants respectfully submit that Claim 1 is not anticipated by Bloom. Claims 2-16 depend directly or indirectly from Claim 1 and are respectfully submitted as not being anticipated for the same reasons as given above for Claim 1.

Further regarding Claim 2, the Examiner stated that Bloom discloses a first one, 58b, of the

conductive traces formed on the top surface of the PCB and a second one, 58e, of the conductive traces formed on the bottom surface of the PCB. Applicants respectfully disagree. Each conductive trace is **formed on an insulating layer** of the PCB, as claimed in Claim 1. A first one of the conductive traces is formed on the top surface **of the corresponding insulating layer**, as claimed in Claim 2. A second one of the conductive traces is formed on the bottom surface **of the corresponding insulating layer**, as claimed in Claim 2.

Applicants respectfully submit that Bloom teaches that at least one of 58a and 58b are insulatingly “carried” on at least one side of a PCB, shown in FIGs. 8A-8C, and on winding disks 35, 36, and 37, shown in FIG. 1A. Applicants respectfully submit also that 58a and 58f, not 58b and 58e, are respectively the conductive traces on the top and bottom insulating layers. (See FIGs. 8A-8C). Applicants respectfully submit therefore, that Bloom does not teach PCB insulating layers having conductive traces respectively thereon, along with separate first and second conductive layers in conductive contact with the top and bottom conductive traces, respectively, as claimed in Claim 2. Applicants respectfully submit that Claim 2 is not anticipated by the teachings in Bloom for this additional reason.

Further regarding Claim 3, the Examiner stated that Bloom teaches the use of conductive contacts that function to attach the top and bottom surface traces to respective first and second conductive layers. The Examiner further stated that, since electrical contacts formed by soldering [are] conventionally known in the art, Bloom anticipates Claim 3. Applicants have amended Claim 3 to further define the invention by specifying that the first and second conductive layers are soldered directly onto, respectively, the top conductive trace and bottom conductive trace. Applicants respectfully submit that Bloom does not disclose directly soldering the first and second conductive layers, respectively, to the top conductive trace and bottom conductive trace, as claimed in Claim 3. For this additional reason, Applicants respectfully submit that Claim 3 is not anticipated by the teachings in Bloom.

Further regarding Claim 4, Applicants respectfully submit that, although Bloom discloses that windings can be “stamped” from steel or other conductive materials, it does not disclose conductive layers apart from the conductive traces insulatingly carried, e.g., on insulating layers. Applicants respectfully submit that Claim 4 is not anticipated by the teachings in Bloom for this additional reason.

Further regarding Claim 11, Applicants respectfully submit that Bloom discloses

conductive traces on an insulating disk, but does not disclose an insulator between a top conductive trace and a first conductive layer, as claimed in Claim 11. For this additional reason, Applicants respectfully submit that Claim 11 is not anticipated by the teachings in Bloom. Claims 12-15 depend directly or indirectly from Claim 11 and are respectfully submitted as not being anticipated for the same additional reasons as given above for Claim 11.

Regarding Claim 17, the electromagnetic component, as claimed in Claim 17, includes PCB **insulating layers** having conductive traces respectively thereon, and separately includes first and second **conductive layers** conductively attached to a respective one of the conductive traces. Applicants respectfully submit that Bloom discloses conductive traces 58a-58f on corresponding insulating layers, as described above regarding Claim 1. Applicants respectfully submit that Bloom does not disclose a first and second conductive layer, as claimed in Claim 17, as elements separate from the insulating layers of the PCB. That is, the electromagnetic component, as claimed in Claim 17, includes a combination of PCB insulating layers having conductive traces thereon, and first and second conductive layers. Applicants respectfully submit that Bloom does not disclose separate first and second conductive layers that are separate from the insulating layers which have conductive traces thereon, as claimed in Claim 17. Applicants respectfully submit therefore, that Claim 17 is not anticipated by Bloom.

Conclusion

For the above reasons, Applicants respectfully submit that all pending claims, Claims 1-17, in the present application are allowable. Such allowance is respectfully solicited.

If a telephone conference would expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (415) 984-8200.

Respectfully submitted,



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